PUBLIC NOTICE

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THE FCC'S ADVISORY COMMITTEE FOR THE 2000 WORLD RADIOCOMMUNICATION CONFERENCE PROPOSES ADDITIONAL PRELIMINARY VIEWS ON WRC-2000 ISSUES

The WRC-2000 Advisory Committee is assisting the Commission in the development of proposals for the World Radiocommunication Conference to be held in the year 2000 (WRC-2000). On July 30, 1998, at its fourth meeting, the Advisory Committee proposed further preliminary views on issues that are to be addressed at WRC-2000[1]. In addition, the National Telecommunications and Information Administration's (NTIA) Radio Conference Subcommittee (RCS) has submitted to the Commission additional preliminary views that have been developed by the Executive Branch agencies. We request comments on these preliminary views.

The preliminary views developed by the Informal Working Groups of the FCC's WRC-2000 Advisory Committee concern: 1) matters related to IMT-2000; 2) allocation for feeder links in bands around 1.4 GHz to the Navigational Non-Geostationary Satellite Orbit (NVNG) Mobile-Satellite Service (MSS) with service links below 1 GHz; 3) allocation to NVNG in the 470-862 MHz band; 4) regulatory and technical provisions to enable sharing among Non-Geostationary Satellite Orbit (NGSO) Fixed-Satellite Service (FSS), Geostationary Satellite Orbit (GSO) FSS, GSO Broadcasting-Satellite Service (BSS), space sciences, and terrestrial services; and 5) use of the band 40.5- 42.5 GHz by the FSS. The complete text of these preliminary views is provided in Sections I through IV below.

Additional preliminary views provided by NTIA's RCS appear in Section V below and are reproduced as presented to the FCC by NTIA. The NTIA views address: 1) a review of Appendix S3 to the Radio Regulations with respect to spurious emissions for space services and radar systems; 2) a revision of Appendix S7 concerning the method for determining the coordination area around an earth station; 3) possible bands for the allocation of additional spectrum for the terrestrial component of IMT-2000; 4) possible bands for the allocation of additional spectrum for the satellite component of IMT-2000; 5) additional spectrum requirements

[1] Previously-proposed preliminary views were presented in FCC Public Notices No. DA 98-842, released May 4, 1998, No. DA 98-1044, released June 3, 1998, and No. DA 98-1125, released June 15, 1998.

for the terrestrial and satellite components of IMT-2000; and 6) regulatory and technical provisions to enable sharing among non-GSO FSS, GSO FSS, GSO BSS, space sciences and terrestrial services.

The complete text of all preliminary views is available in the FCC's International Reference Center, 2000 M Street, N.W., Room 102, Washington, D.C. (telephone: 202-418-1492) or by accessing the FCC's WRC-2000 world wide web site at: http://fcc.gov/wrc-99. To comment on the above preliminary view, please submit an original and one copy of your comment to the Chief, Planning & Negotiations Division, International Bureau, Federal Communications Commission, 2000 M Street, N.W., Suite 800, Washington, D.C. 20554. Comments should refer to the above preliminary view by document number. Parties preferring to e-mail their comments should address their comments to: wrc-99@fcc.gov. The deadline for comments is August 21, 1998.

The comments provided will be of assistance to the FCC in its upcoming consultations with the U.S. Department of State, the NTIA, and other government agencies for developing and updating U.S. preliminary views. Once approved by agreement among these agencies of the U.S. Government, preliminary views may be used by U.S. delegations to stimulate discussion and feedback and to attempt to achieve common proposals with other countries on these issues. The proposed preliminary views set forth herein may evolve in the course of interagency discussions and therefore do not constitute a final U.S. Government position on these issues.

I. Preliminary Views of IWG-1 (Informal Working Group on Mobile Service Matters including IMT-2000)

A. Preliminary View

WRC-2000 AGENDA ITEM 1.6.1: *Matters related to IMT-2000. (WAC/030(30.07.98))*

BACKGROUND: Following WRC-97's designation of the bands 47.2 - 47.5 GHz and 47.9 - 48.2 GHz for use by HAPS in the fixed service, a number of administrations expressed interest in the ability of HAPS to provide terrestrial IMT-2000 mobile and fixed wireless access services. Because WRC-97 adopted RR S4.15A providing that "Transmissions to or from high altitude platform stations shall be limited to bands specifically identified in Article S5", it will be necessary to obtain a change to the Table of Frequency Allocations at WRC-99 to provide for the optional use of HAPS terrestrial IMT-2000 systems. Agenda Item 1.6.1 provides in pertinent part for "review of ... regulatory issues for advanced mobile applications in the context of IMT-2000 ... and adjustments to the Table of Frequency Allocations as necessary." The use of HAPS in the terrestrial component of IMT-2000 is a regulatory issue that will require an adjustment to the Table within Agenda Item 1.6.1.

The United States submitted a contribution to the 27 April - 8 May meeting of ITU-R Task Group 8/1(Doc. 8-1/80) entitled *WORKING DOCUMENT TOWARD A PRELIMINARY DRAFT NEW RECOMMENDATION ON OPERATIONAL AND TECHNICAL CHARACTERISTICS FOR A TERRESTRIAL IMT-2000 SYSTEM USING HIGH ALTITUDE PLATFORM STATIONS* that described characteristics of HAPS in the terrestrial component of IMT-2000 and that provided a Proposed Draft New Recommendation indicating that HAPS be included as a station within the bands already identified for use by the terrestrial component of IMT-2000 (1885-1980

MHz, 2010-2025 MHz, and 2110-2170 MHz in Regions 1 and 3; and 1885-1980 MHz and 2110-2160 MHz in Region 2), subject to operating and sharing studies. The TG 8/1 meeting determined that HAPS are a new technology that may provide benefits as a low cost, large area coverage, delivery vehicle for IMT-2000 terrestrial service. TG 8/1 established a Correspondence Group to study the operating and sharing characteristics of HAPS within the bands already identified for use by the terrestrial component of IMT-2000 in order to prepare contributions to the next meeting of TG 8/1 in November 1998.

PRELIMINARY VIEW: The United States supports the TG 8/1 studies concerning operating and sharing characteristics of HAPS IMT-2000 in the bands 1885-1980 MHz, 2010-2025 MHz, and 2110-2170 MHz in Regions 1 and 3; and 1885-1980 MHz and 2110-2160 MHz in Region 2. The United States will actively participate in the HAPS IMT-2000 Correspondence Group and encourages members of CITEL and other administrations to do so as well. Upon acceptance of HAPS TG8/1 satisfactory study results by both the United States communications industry and government, the United States may consider the recognition of HAPS using air-interface and network standards according to IMT-2000 Recommendations as an option available to administrations in deploying terrestrial IMT-2000 systems.

II. Preliminary Views of IWG-2 (Informal Working Group on NGSO Mobile-Satellite Service Below 1 GHz)

A. Preliminary View

ISSUE: Allocation for feeder links in bands around 1.4 GHz to NVNG MSS with service links below 1 GHz *(WAC/031(30.07.98))*

WRC-2002 AGENDA ITEM: Agenda Item 3 states, "to consider the results of the studies related to the following with a view to considering them for inclusion in the agendas of future Conferences." One of the following items is Agenda item 3.5 which states, "allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS systems with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (WRC-97)."

BACKGROUND: The resolution to study the 1.4 GHz band for NGSO MSS with service links below 1 GHz was adopted at WRC-97. However, consideration of the results of studies related to that issue was placed on the WRC-2002 agenda. A study in the ITU-R indicates that the frequency band 1429-1432 MHz could be suitable for use by non-GSO MSS feeder downlinks and the frequency band 1390-1393 MHz could be suitable for use for non-GSO MSS feeder uplinks (See 8D/TEMP/58 Rev. 1). This study was sent via liaison statement to Working Party 7C and 7D where it will be reviewed at the fall set of ITU-R meetings.

PRELIMINARY VIEW: Studies need to be completed and regulatory approach established to ensure that the radio astronomy, earth exploration-satellite (EES) and radiolocation services in the adjacent bands are not compromised. It is anticipated that the studies will be sufficiently completed, prior to WRC-2000, so that the US may be in a position to request WRC-2000 makes a modification to agenda items 3 and 3.5 of WRC-2002. The modification could be to ask for consideration of the allocations at WRC-2002 and to not defer the consideration to a future Conference.

B. Preliminary View
ISSUE: Allocation to NVNG MSS in the 470-862 MHz band *(WAC/032(30.07.98))*

WRC-2002 AGENDA ITEM: Agenda Item 3 states, "to consider the results of the studies related to the following with a view to considering them for inclusion in the agendas of future Conferences." One of the following items is Agenda item 3.4 which states, "additional allocations on a worldwide basis for non-GSO MSS with service links operating below 1 GHz in accordance with Resolution 728 (WRC-97).

BACKGROUND: The United States developed papers calling for study resolutions intended to support additional co-primary allocations to NGSO MSS in the 470-862 MHz band. At WRC-97 there was very little support outside the United States and a few Region 2 countries for additional spectrum for NGSO MSS below l GHz. Proposed study resolutions were strongly opposed. However, the U.S. was successful in compromises that adopted resolutions to study the possibility of additional allocations for NGSO MSS in the band 470-862 MHz. Consideration of the results of studies related to that issue was placed on the WRC-2002 agenda

It should be noted that ITU-R Working Party 8D received a liaison statement from Working Party 11C at its spring '98 meeting. This document revised the protection requirements of terrestrial television that were originally prepared at CPM-97. Working Party 8D noted the document.

PRELIMINARY VIEW: The feasibility of MSS sharing with broadcasting and other radiocomunication services in this band requires further study in the ITU-R. Based on these results, the US will determine whether to pursue MSS allocations in this band.

III. Preliminary Views of IWG-4 (Informal Working Group on NGSO Fixed-Satellite Service (including consideration of Art. S21 and S22 PFD Limits)

A. Preliminary View
ISSUE: Pursuant to the Resolutions identified in WRC-2000 Agenda Item 1.13, regulatory and technical provisions to enable sharing among non-GSO FSS, GSO FSS, GSO BSS, space sciences and terrestrial services. *(WAC/033(30.07.98))*

WRC-2000 Agenda Item 1.13: *on the basis of results of the studies in accordance with Resolutions 130(WRC-97), 131(WRC-97), and 538(WRC-97):*

1.13.1: *to review and, if appropriate, revise the power limits appearing in Articles **S21** and **S22** in relation to the sharing conditions among non-GSO FSS, GSO FSS, GSO broadcasting-satellite service(BSS), space sciences and terrestrial services, to ensure the feasibility of these power limits and that these limits do not impose undue constraints on the development of these systems and services;*

1.13.2: *to consider the inclusion in other frequency bands of similar limits in Articles **S21** and **S22**, or other regulatory approaches to be applied in relation to sharing situations;*

BACKGROUND: WRC-97 adopted provisional power flux density limits in certain frequency bands which would apply to non-GSO FSS systems to protect GSO FSS networks and GSO BSS networks. Resolution 130 (WRC-97), *Use of Non-Geostationary Systems in the Fixed-Satellite Service in Certain Frequency Bands* and Article S22.2 of the Radio Regulations contain provisional limits corresponding to an interference level caused by one NGSO system in the frequency bands 10.7-12.75 GHz, 17.8-18.6 GHz, and 19.7-20.2 GHz. Resolution 538, *Use of the Frequency Bands Covered by Appendices 30 and 30A by Non-GSO Systems in the Fixed-Satellite Service*, and Article S22 contain provisional limits corresponding to permissible levels of interference level from a NGSO system into a GSO BSS network. These limits are provisional, subject to review by ITU-R and confirmation by WRC-2000. WRC-97 also addressed the subject of power flux density limits applicable to NGSO FSS systems for protection of terrestrial services in the bands 10.7-12.75 GHz and 17.7-19.3 GHz. Resolution 131 (WRC-97), *Power Flux-Density Limits Applicable to Non-GSO FSS Systems for Protection of Terrestrial Services in the Bands 10.7-12.75 GHz and 17.7-19.3 GHz*, and Article S21 contain limits, some of which are provisional as to certain NGSO FSS systems, to protect terrestrial service. Review of the provisional limits was requested in Resolution 131, and the resolution also calls for further study of the non-provisional pfd limits.

PRELIMINARY VIEWS:

The U.S. continues to review the power limits -- both the provisional limits adopted in Article S22 and also contained in WRC-97 Resolutions 130 and 538, and the limits in Article S21 and also contained in WRC-97 Resoultion 131 -- with the intent of protecting the GSO FSS, GSO BSS, space sciences, and terrestrial services while allowing the introduction of NGSO FSS systems.

There will be a need for an alternative approach to facilitate sharing in some specific situations. For example, the provisional epfd limits and associated time allowances may not adequately protect existing GSO FSS networks with large earth station antennas (large earth station antennas will be defined as a result of technical work within the ITU-R). The U.S. favors coordination between NGSO FSS networks and these GSO FSS networks.

Sharing with satellite systems in quasi-geostationary satellite orbit needs to be considered within this agenda item.

The APFD definition in the Radio Regulations should be modified to take into account the normalized directivity of the GSO satellite antenna. (For ease of computation, the WRC-97 APFD definition did

not take into account the GSO satellite antenna pattern.) The corresponding APFD limits would consist of several values that are associated with various GSO satellite reference antenna patterns. Due to the differing spacecraft design practices in Ku- and Ka-bands, the antenna directivity patterns may vary with frequency band.

GSO systems operating in slightly inclined orbits constitute an important subgroup of all operational satellites and need to be protected from NGSO interference.

Outside of bands where provisional power limits were adopted by WRC-97, no technical basis has been established for consideration by WRC-2000 of the power limits approach to sharing between and/or among NGSO FSS systems and GSO FSS, GSO BSS, space sciences, and/or terrestrial services systems.

The study of the provisional power flux-density limits by the ITU-R and the review of these limits by WRC-2000 must ensure protection of modifications to the BSS Plans, including currently pending modifications and future modifications to the Plans. The majority of BSS systems that have been implemented, or will be implemented in the future, are modifications to the Plans. In addition, more than three years can lapse between the submission of Annex 2 information regarding proposed modifications to the Plans by an administration, and the actual publication of this information by the BR. This can result in substantial delays in completion of the modification process, even for modifications of existing frequency assignments. WRC-97 (in both Resolution 538 and Resolution 721, agenda item 1.13) clearly foresaw the need to protect future modifications to the Plans from NGSO FSS systems, and to ensure that these limits do not impose undue constraints on the development of these systems and services (as stated in agenda item 1.13).

IV. Preliminary Views of IWG-7 (Informal Working Group on Fixed and Fixed-Satellite Service 36-51 GHz Matters)

A. Preliminary View

Issue: Use of the band 40.5-42.5 GHz by the FSS (WAC/034(30.07.98))

WRC-2000 Agenda Item: Agenda Item 1.4 invites Administrations to consider use of the band 40.5-42.5 GHz by the FSS. Resolution 134 resolves that WRC-2000 should review the allocation to the FSS in Regions 1 and 3 in the band 40.5-42.5 GHz, including the date of
1 January 2001, taking full account of the requirements of the other services to which the band is allocated and the available ITU-R studies.

Background: At WRC-97, the United States proposed that an FSS primary allocation be added to the bands 40.5 to 42.5 GHz. This proposal was adopted by all Region 2 countries at the Conference. It was also adopted by most countries of Region 3 and all Arab

countries and some African countries in Region 1.

In light of the use of the band 37-40 GHz by the Fixed Service (FS) around the world, the 40.5-42.5 GHz band was identified as the only candidate within the range 30-50 GHz for the FSS in the space-to-Earth direction.

The United States is addressing co-channel and adjacent channel sharing issues. To this end the US is participating in the studies that are being conducted in Working party (WP) 4A and WP 4/9S in accordance with the provisions of Resolution 129 (WRC-97).

With regard to adjacent channel sharing issues, the United States is actively participating in Working party 7D. This group's responsibilities regarding Agenda Item 1.4 is to conduct ITU-R studies pursuant to Resolution 128 (WRC-97). It is studying the potential for harmful interference from space stations in the FSS (space-to-Earth) operating in the band 41.5-42.5 GHz to the Radio Astronomy service operating in the 42.5-43.5 GHz band. This group is to identify technical and operational measures that may be taken to protect RA station operations as well as measures that may be implemented to reduce the susceptibility to stations in the RA service to harmful interference.

Preliminary View: The United States supports the worldwide allocation of the 40.5-42.5 GHz band for FSS in accordance with the following three principles:

1. The US supports the allocation of the 40.5-42.5 GHz band worldwide to the FSS at WRC-2000 with an implementation in the year 2000 (see Resolution 134 (WRC-97)).
2. The US continues to participate in sharing studies relative to sharing in this band between the FSS and terrestrial services. These studies will take due account of Resolution 129 and 133 from WRC-97.
3. The allocation to the FSS on a worldwide basis should afford adequate protection to the Radio Astronomy service in the adjacent band (42.5-43.5 GHz) in accordance with Resolution 128 (WRC-97) noting that it would be appropriate for the Radio Astronomy service to investigate ways to reduces its susceptibility to harmful interference.

V. Preliminary Views of NTIA's Radio Conference Subcommittee

(WAC/035 (30.07.98))

WRC-2000 AGENDA ITEM 1.2: *to finalize remaining issues in the review of Appendix S3 to the Radio Regulations with respect to spurious emissions for space services, taking into account Recommendation 66 (Rev. WRC-97) and the decisions of WRC-97 adoption of new values, due to take effect at a future time, of spurious emissions for space services;*

ISSUE: Revision of Appendix S3, spurious emissions for space services and radar systems.

BACKGROUND: Recommendation No. 66 (Rev. WRC-97) directs the ITU-R to submit a report to WRC-2000 with a view to finalizing the space services spurious emissions limits in Appendix S3 of the Radio Regulations. The current RR text lists space services spurious emissions as design objectives that will become limits if not changed by the next WRC. Current studies show that these limits are achievable.

Furthermore, modifications to Appendix S3 made at WRC-97 could be wrongly interpreted in two provisions pertaining to radar systems. First, the limits on systems installed on or before 1 January 2003 were not intended to apply to radars; however, the wording in Section 1, paragraph 6 could be read as applying the limits to radars. Second, Section 2, paragraph 8 indicates that the e.i.r.p. measurement method can be used when it is not possible to measure the power applied to the antenna transmission line. Because there are many radar systems where the antenna attenuates the spurious signals, measurement of the power applied to the antenna transmission line may be "possible" but not "appropriate." For this reason, common practice is to measure all radars using the e.i.r.p. method and should be indicated in the Appendix.

U.S. PRELIMINARY VIEW: The United States supports removal of the "design objectives" designation from the space services spurious emissions limits given that the limits and reference bandwidth remain as agreed at WRC-97.

Furthermore, it supports modification to Appendix S3 to make it clear that no limits apply to radar systems installed on or before 1 January 2003 and that the e.i.r.p. method can be used on radars.

WRC-2000 AGENDA ITEM 1.3: *to consider the results of ITU-R studies in respect of Appendix S7/28 on the method for the determination of the coordination area around an earth station in frequency bands shared among space services and terrestrial radiocommunication services, and to take the appropriate decision to revise this Appendix;*

ISSUE: The revision of Appendix S7.

BACKGROUND: Appendix S7 provides the method for determining the coordination area around an earth station. The appendix has not been updated in many years, though changes have been made to the associated recommendations (ITU-R Recommendations IS. 847-850). Work in TG1/6 is aimed at 1) updating the system characteristics that are used; 2) considering new approaches to handling new propagation information and other probabilistic factors; and 3) extending the frequency range to which the recommendations apply.

In the past, propagation and probabilistic factors have been lumped together. TG1/6 is currently considering methods to separate these aspects. Though Appendix S7 has been successfully used for years, the separation of the factors may lead to rejection of the probabilistic component and lead unnecessarily to larger coordination areas.

U.S. PRELIMINARY VIEW: The United States supports the updating of Appendix S7 using the improved techniques given in ITU-R Recommendations IS. 847-850 as a basis, by using updated system characteristics, and by extending the frequency range upward. However, the United States is concerned about the progress of the work of TG1/6 in certain areas. New approaches for dealing with propagation and other probabilistic components may lead to an unnecessary increase in the size of coordination areas, the existing method having produced useful results for many years. Also, the United States has not seen a benefit to extending the frequency range below 1000 MHz.

While, in general, the United States supports the use of ITU-R Recommendation 847 to update Appendix S7, the recommendation, in the context of transportable equipment, may not be properly applied near land boundaries between administrations.

WRC-2000 Agenda Item 1.6.1: *review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary;*

ISSUE: Possible bands for the allocation of additional spectrum for the terrestrial component of IMT-2000.

BACKGROUND: IMT-2000 defines 3rd generation wireless systems providing worldwide telecommunications services regardless of location, network, or terminal used. Integrated terrestrial mobile and mobile satellite systems will provide different types of wireless access on a global basis. Key features are high degree of commonality of design, compatibility of services, high quality, small pocket terminal with worldwide roaming capability, and capability for multi-media applications.

The bands 1885-2025/2110-2200 MHz are intended for use worldwide by administrations wishing to implement IMT-2000 (RR S5.388 and RES 212 (Rev. WRC-97), around the year 2000. Impacting the common spectrum available worldwide for IMT-2000 is the existing use of the IMT-2000 bands by fixed, mobile and mobile-satellite services.

Recommendation ITU-R M.687-2 states that terrestrial IMT-2000 may be able to share band allocations with fixed and possibly other services only where there is suitable geographic separation between

services, or where neither service requires the total allocation bandwidth. This recommendation also points out that sharing is not feasible with the space science or radio astronomy services.

Contributions to the March 1998 TG8/1 meeting indicate some interest in the following bands as extension bands for the terrestrial component: 470-866 MHz, 869-915 MHz, 925-960 MHz, 1350-1400 MHz, 1427-1527 MHz, 1668-1690 MHz, 1710-1785 MHz, 1805-1920 MHz, 1945-1980 MHz, 2025-2110 MHz, 2200-2300 MHz, 2360-2670 MHz and 2700-3400 MHz.

PRELIMINARY VIEW: Additional spectrum required (if demonstrated) for IMT-2000 may be fulfilled in existing fixed and mobile bands currently used for cellular, personal communication system (PCS), commercial mobile radio service (CMRS) as an evolutionary process. The U.S. supports regulatory flexibility to permit the migration from pre-IMT-2000 systems to IMT-2000. The U.S. opposes allocations for bands where radiolocation, radionavigation (including aeronautical radionavigation), radionavigation-satellite, space services and passive services are primary or secondary, given that there exists a general consensus that IMT-2000 will not be able to share with these services and TG8/1 has no plans for performing sharing studies. Furthermore, the U.S. opposes band segmentation and refarming of bands where there are existing services.

WRC-2000 Agenda Item 1.6.1: *review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary;*

ISSUE: Possible bands for allocation of additional spectrum for the satellite component of IMT-2000.

BACKGROUND: IMT-2000 defines 3rd generation wireless systems providing worldwide telecommunications services regardless of location, network, or terminal used. Integrated terrestrial mobile and mobile satellite systems will provide different types of wireless access on a global basis. Key features are high degree of commonality of design, compatibility of services, high quality, small pocket terminal with worldwide roaming capability, and capability for multi-media applications.

The bands 1885-2025/2110-2200 MHz are intended for use worldwide by administrations wishing to implement IMT-2000 (RR S5.388 and RES 212 (Rev. WRC-97), around the year 2000. The portions 1980-2010/2170-2200 MHz are allocated to MSS worldwide, potentially for the satellite component of IMT-2000 (RR S5.389A). Internationally, non-IMT-2000 MSS systems are likely to use these MSS allocations thereby reducing the amount of spectrum available on a worldwide

basis for the satellite component.

Contributions to the March 1998 TG8/1 meeting indicate some interest in the following bands as extension bands for the satellite component: 1525-1559/1626.5-1660.5 MHz, 1610-1626.5/2483.5-2500 MHz, 1559-1567/part of 1675-1690 MHz, 1660.5-1668.4 MHz and 2500-2535/2655-2690 MHz. Some of these bands are already allocated to MSS.

PRELIMINARY VIEW: Additional spectrum requirements (if demonstrated) for the satellite component of IMT-2000 may be fulfilled in the existing MSS allocations around 1-3 GHz, taking into account the spectrum requirement for other types of MSS services. The U.S. opposes allocations for bands where radiolocation, radionavigation (including aeronautical radionavigation), radionavigation-satellite, space services and passive services are primary or secondary, given that there exists a general consensus that IMT-2000 will not be able to share with these services and TG8/1 has no plans for performing sharing studies. However, the U.S. view regarding the 1559-1567 MHz band is stated in the preliminary view for Agenda Item 1.9. Furthermore, the U.S. opposes band segmentation and refarming of bands where there are existing services.

WRC-2000 Agenda Item 1.6.1: *review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary;*

ISSUE: Additional spectrum requirements for the terrestrial and satellite components of IMT-2000.

BACKGROUND: IMT-2000 defines 3rd generation wireless systems providing worldwide telecommunications services regardless of location, network, or terminal used. Integrated terrestrial mobile and mobile satellite systems will provide different types of wireless access on a global basis. Key features are high degree of commonality of design, compatibility of services, high quality, small pocket terminal with worldwide roaming capability, and capability for multi-media applications.

WARC-92 identified 240 MHz for worldwide use by Administrations wishing to implement IMT-2000 (RR S5.388 and RES 212 (Rev. WRC-97), around the year 2000. 2x30 MHz of that was allocated to MSS worldwide, potentially for the satellite component of IMT-2000 (RR S5.389A). Existing fixed, mobile and mobile satellite services use portions of the bands identified for IMT-2000 implementation, thus impacting the common spectrum available worldwide for IMT-2000.

Contributions to the TG8/1 April meeting indicate a requirement for

additional worldwide and regional spectrum (Europe-Terrestrial 120 MHz). In the U.S., a 1994 PCIA survey estimated 235 MHz of additional spectrum. The U.S. contribution, a 1998 PCIA survey, was used by TG8/1 to develop an example calculation of additional spectrum required for an ITU-R Draft New Recommendation. The U.S. estimates for the year 2010 could reach 250 MHz, for total of around 500 MHz required for IMT-2000. In a similar draft new recommendation on satellite spectrum requirements, an example based on U.S. traffic data in year 2010 estimates 2x33 MHz of additional spectrum.

PRELIMINARY VIEW: If the need for additional spectrum for IMT-2000 is demonstrated, the U.S. may support some additional spectrum for the 2005-2010 timeframe, amount to be determined and subject to appropriate sharing studies.

WRC-2000 Agenda Item 1.13: *on the basis of results of the studies in accordance with Resolutions 130(WRC-97), 131(WRC-97), and 538(WRC-97):*

1.13.1: *to review and, if appropriate, revise the power limits appearing in Articles **S21** and **S22** in relation to the sharing conditions among non-GSO FSS, GSO FSS, GSO broadcasting-satellite service(BSS), space sciences and terrestrial services, to ensure the feasibility of these power limits and that these limits do not impose undue constraints on the development of these systems and services;*

1.13.2: *to consider the inclusion in other frequency bands of similar limits in Articles **S21** and **S22**, or other regulatory approaches to be applied in relation to sharing situations;*

ISSUE: Regulatory and technical provisions to enable sharing among non-GSO FSS, GSO FSS, GSO BSS, space sciences and terrestrial services.

BACKGROUND: WRC-97 adopted provisional power flux density limits in certain frequency bands which would apply to non-GSO FSS systems to protect GSO FSS networks, terrestrial services, and GSO BSS networks. Resolution 130 (WRC-97), *Use of Non-Geostationary Systems in the Fixed-Satellite Service in Certain Frequency Bands* and Article S22.2 of the Radio Regulations contain limits corresponding to an interference level caused by one NGSO system in the frequency bands 10.7-12.75 GHz, 17.8-18.6 GHz, and 19.7-20.2 GHz. Resolution 131 (WRC-97), *Power Flux-Density Limits Applicable to Non-GSO FSS Systems for Protection of Terrestrial Services in the Bands 10.7-12.75 GHz and 17.7-19.3 GHz*, and Article S21 contain limits to protect terrestrial service. Resolution 538, *Use of the Frequency Bands Covered by Appendices 30 and 30A by Non-GSO Systems in the Fixed-Satellite Service*, and Article S22 contain limits corresponding to an permissible levels of interference level from a

NGSO system into a GSO BSS network. These limits are provisional, subject to review by ITU-R and confirmation by WRC-2000.

PRELIMINARY VIEW:

1. The U.S. continues to review the provisional power limits with the intent of protecting the GSO FSS, GSO BSS, space sciences, and terrestrial services while allowing the introduction of NGSO FSS systems.

2. There will be a need for an alternative approach to facilitate sharing in some specific situations. The provisional epfd limits and associated time allowances do not adequately protect existing GSO FSS networks with large earth station antennas (large earth station antennas will be defined as a result of technical work within the ITU-R). The U.S. favors coordination between NGSO FSS networks and these GSO FSS networks.

3. Earth stations operating in the 13.75-14.0 GHz band are technically constrained by S5.502 (minimum size of 4.5 meters; e.i.r.p. between 68 and 85 dBW), S5.503 (e.i.r.p. density in the band 13.772-13.778 MHz), and S5.503A (FSS shall not cause harmful interference to NGSO space stations in the space research and Earth exploration-satellite services until January 1, 2000). In addition, there are ITU-R Recommendations (e.g., ITU-R S.1068 (Fixed-satellite service and radiolocation/radionavigation services sharing in the band 13.75-14.0 GHz) and ITU-R SA.1071 (Use of the 13.75 to 14.0 GHz band by the space science services and the fixed-satellite service)) that describe sharing situations with the fixed-satellite service, including recommended limitations on the FSS. These footnotes and recommendations will have to continue to be applied to both GSO and NGSO systems operating in the band.

4. Characteristics of radars currently operating in the bands 13.75-14.0 GHz have been examined. Radars operating in the 13.75-14.0 GHz band employ e.i.r.p. values of up to 79 dBW. Interference from these radiolocation stations to NGSO FSS networks would appear to be probable and sharing may not be feasible.

5. Characteristics of radars currently operating in the band 17.3-17.7 GHz have been examined. Radars operating in the band 17.3-17.7 GHz employ e.i.r.p. values up to 115 dBW. Sharing was found to be feasible with GSO FSS systems (Earth-to-space) if the radiolocation stations limit their emissions toward the geostationary orbit. Sharing would not appear to be feasible between radiolocation stations and NGSO FSS networks.

6. Sharing with satellite systems in quasi-geostationary satellite orbit needs to be considered within this agenda item.

For additional information, please contact Damon C. Ladson or Maureen C. McLaughlin at 418-2150.